

INFUSION SET AND INSERTER ASSEMBLY

CROSS-RELATED APPLICATION(S)

[0001] The present application is a Divisional of U.S. patent application Ser. No. 15/434,906, filed Feb. 16, 2017 and entitled Infusion Set and Inserter Assembly, now U.S. Pat. No. 10,792,419, issued Oct. 6, 2020 (U64), claims the benefit of U.S. Provisional Application Ser. No. 62/295,805 filed Feb. 16, 2016 and entitled Infusion Set and Inserter Assembly and Methods of Using Thereof (Attorney Docket No. Q99), which is hereby incorporated herein by reference in its entirety.

FIELD OF THE INVENTION

[0002] This application relates generally to infusion sets and inserter assemblies for infusion sets, and more particularly to infusion sets and inserter assemblies and method of using thereof.

BACKGROUND

[0003] Many potentially valuable medicines or compounds, including biologicals, are not orally active due to poor absorption, hepatic metabolism or other pharmacokinetic factors. Additionally, some therapeutic compounds, although they can be orally absorbed, are sometimes required to be administered so often it is difficult for a patient to maintain the desired schedule. In these cases, parenteral delivery is often employed or could be employed.

[0004] Effective parenteral routes of drug delivery, as well as other fluids and compounds, such as subcutaneous injection, intramuscular injection, and intravenous (IV) administration include puncture of the skin with a needle or stylet. Insulin is an example of a therapeutic fluid that is self-injected by millions of diabetic patients. Users of parenterally delivered drugs may benefit from a wearable device that would automatically deliver needed drugs/compounds over a period of time.

[0005] To this end, there have been efforts to design portable and wearable devices for the controlled release of therapeutics. Such devices are known to have a reservoir such as a cartridge, syringe, or bag, and to be electronically controlled. These devices suffer from a number of drawbacks including the malfunction rate. Reducing the size, weight and cost of these devices is also an ongoing challenge. Additionally, these devices often apply to the skin and pose the challenge of frequent re-location for application.

SUMMARY OF THE INVENTION

[0006] In accordance with one implementation, a two-stage infusion set inserter system is disclosed. The inserter system includes an inserter assembly including a housing including a rotatable button assembly comprising ramps and tab indents and a non-rotatable portion of housing, a sliding component comprising sliding component tabs, a needle carrier connected to an introduction needle, the needle carrier slidably movable from a starting position to an injection position and then to a second ending position, a sliding component spring, and a needle spring, wherein the rotatable button assembly rotates from a locked to an unlocked position, wherein when force is applied onto the rotatable button assembly, the sliding component and needle carrier are forced downward by the sliding component spring, and wherein when the needle carrier reaches the

injection position, the needle spring forces the needle carrier upward towards the second ending position.

[0007] Some embodiments of this implementation may include one or more of the following. Wherein the rotatable button assembly comprising ramps and tab indents. Wherein the sliding component comprising sliding component tabs. Wherein when the rotatable button assembly is in the locked position, the sliding component tabs are in the tab indents. Wherein when the rotatable button assembly is in the unlocked position, the ramps are in contact with the sliding component tabs. Wherein the system further comprising an infusion set attached to the housing. Wherein the infusion set comprising a base and wherein the base comprising an adhesive layer. Wherein the adhesive layer comprising an adhesive liner. Wherein the system further comprising a slider stop, wherein when the sliding component reaches the slider stop, the slider stop forces the sliding component to stop downward movement. Wherein the needle carrier comprising spring fingers and wherein when the needle carrier interacts with the slide stop, the slide stop forces the spring fingers inward and the needle carrier moves from the injection position to the ending position.

[0008] Wherein the system further comprising an introduction needle connected to the needle carrier, wherein when the needle carrier moves to the ending position, the introduction needle moves to the ending position and wherein the introduction needle is inside the housing portion. Wherein the rotatable button assembly comprising a first alignment indicia and the non-rotatable portion of housing comprising a second alignment indicia, wherein when the rotatable button assembly rotates from a locked position to an unlocked position, the first alignment indicia and the second alignment indicia line up to indicate the system is in the unlocked position.

[0009] In accordance with another implementation, an infusion device is disclosed. The infusion device includes a base portion including a cannula and a septum retainer comprising a retainer cutout, wherein the cannula is located within the retainer cutout, and a connector comprising a connector needle, the connector removably attached to the base portion, wherein the cannula may pivot within the retainer cutout with respect to the base.

[0010] Some embodiments of this implementation may include one or more of the following. Wherein the base portion further including a cutout area configured for receiving a length of tubing. Wherein the connector including connector fingers comprising ribbing. Wherein the connector comprising a connector needle protector located above the connector needle. Wherein the retainer cutout comprising a topically introduced ointment. Wherein the device further includes a predetermined length of tubing connector to the connector. Wherein the base further includes a finger grip area configured for finger grip stability while connecting the base and the connector. Wherein the retainer cutout is conical.

[0011] The details of one or more embodiments are set forth in the accompanying drawings and the description below. Other features and advantages will become apparent from the description, the drawings, and the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIGS. 1-5 are various views of one embodiment of an infusion set;